Trash Long-Term Reduction Plan and Progress Assessment Strategy

February 1, 2014

Submitted by:

County of Alameda, 399 Elmhurst Street, Hayward, CA 94545

In compliance with Provisions C.10.c of Order R2-2009-0074

County of Alameda
LONG-TERM TRASH LOAD REDUCTION PLAN AND ASSESSMENT STRATEGY

CERTIFICATION STATEMENT

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature by Duly Authorized Representative:

_____

Daniel Woldesenbet, Ph.D., P.E.
Director of Public Works

February 1, 2014

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ABBREVIATIONS

BASMAA	Bay Area Stormwater Management Agencies Association
BID	Business Improvement District
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CASQA	California Stormwater Quality Association
CDS	Continuous Deflection Separator
CEQA	California Environmental Quality Act
CY	Cubic Yards
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
GIS	Geographic Information System
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
NGO	Non-Governmental Organization
NPDES	National Pollutant Discharge Elimination System
Q	Flow
SFRWQCB	San Francisco Regional Water Quality Control Board
SWRCB	State Water Resource Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
Water Board	San Francisco Regional Water Quality Control Board
WDR	Waste Discharge Requirements

PREFACE

This Long-Term Trash Load Reduction Plan and Assessment Strategy (Long-Term Plan) is submitted in compliance with provision C.10.c of the Municipal Regional Stormwater NPDES Permit (MRP) for Phase I communities in the San Francisco Bay (Order R2-2009-0074). The Long-Term Plan was developed using a regionally consistent outline and guidance developed by the Bay Area Stormwater Management Agencies Association (BASMAA) and reviewed by San Francisco Bay Regional Water Quality Control Board staff. The Long-Term Plan is consistent with the Long-Term Trash Load Reduction Framework developed in collaboration with Water Board staff. Its content is based on the County of Alameda's current understanding of trash problems within its jurisdiction and the effectiveness of control measures designed to reduce trash impacts associated with Municipal Separate Storm Sewer (MS4) discharges. This Long-Term Plan is intended to be iterative and may be modified in the future based on information gained through the implementation of trash control measures. The County of Alameda therefore reserves the right to revise or amend this Long-Term Plan at its discretion. If significant revisions or amendments are made by the County, a revised Long-Term Plan will be submitted to the Water Board through the County's annual reporting process.

1.0 Introduction

1.1 Purpose of Long-Term Trash Reduction Plan

The Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit for Phase I communities in the San Francisco Bay (Order R2-2009-0074), also known as the Municipal Regional Permit (MRP), became effective on December 1, 2009. The MRP applies to 76 large, medium and small municipalities (cities, towns and counties) and flood control agencies in the San Francisco Bay Region, collectively referred to as Permittees. Provision C.10.c of the MRP requires Permittees (excluding flood control agencies) to submit a *Long-Term Trash Load Reduction Plan* (Long-Term Plan) by February 1, 2014. Long-Term Plans must describe control measures that are currently being implemented, including the level of implementation, and additional control measures that will be implemented and/or increased level of implementation designed to attain a 70% trash load reduction by July 1, 2017, and 100% (i.e., "No Visual Impact") by July 1, 2022.

This Long-Term Plan is submitted by the County of Alameda in compliance with MRP provision C.10.c. Consistent with provision C.10 requirements, the goal of the Long-Term Plan is to solve trash problems in receiving waters by reducing the impacts associated with trash in discharges from the County of Alameda's municipal separate storm sewer system (MS4) that are regulated by NPDES Permit requirements. The Long-Term Plan includes:

1. Descriptions of the current level of implementation of trash control measures, and the type and extent to which new or enhanced control measures will be implemented to achieve a target of 100% (i.e. full) trash reduction from MS4s by July 1, 2022, with an interim milestone of 70% reduction by July 1, 2017;
2. A description of the *Trash Assessment Strategy* that will be used to assess progress towards trash reduction targets achieved as a result of control measure implementation; and,
3. Time schedules for implementing control measures and the assessment strategy.

The Long-Term Plan was developed using a regionally consistent outline and guidance developed by the Bay Area Stormwater Management Agencies Association (BASMAA) and reviewed by the San Francisco Bay Regional Water Quality Control Board (Water Board) staff. The Long-Term Plan is consistent with the Long-Term Trash Load Reduction Framework (see section 1.2.1) developed in collaboration with Water Board staff. Its content is based on the County of Alameda's current understanding of trash problems within its jurisdiction and the effectiveness of control measures designed to reduce trash impacts associated with Municipal Separate Storm Sewer (MS4) discharges. The Long-Term Plan builds upon trash control measures implemented by the County prior to the adoption of the MRP and during the implementation of the Short-Term Trash Load Reduction Plan submitted to the Water Board on February 1, 2012.

1.2 Background

1.2.1 Long-Term Trash Load Reduction Plan Framework

A workgroup of MRP Permittee representatives and Water Board staff met between October 2012 and March 2013 to better define the process for developing and implementing Long-Term Plans, methods for assessing progress toward reduction goals, and tracking and reporting requirements associated with provision C.10. Through these discussions, an eight-step framework for developing and implementing Long-Term Plans was created by the workgroup (Figure 1).

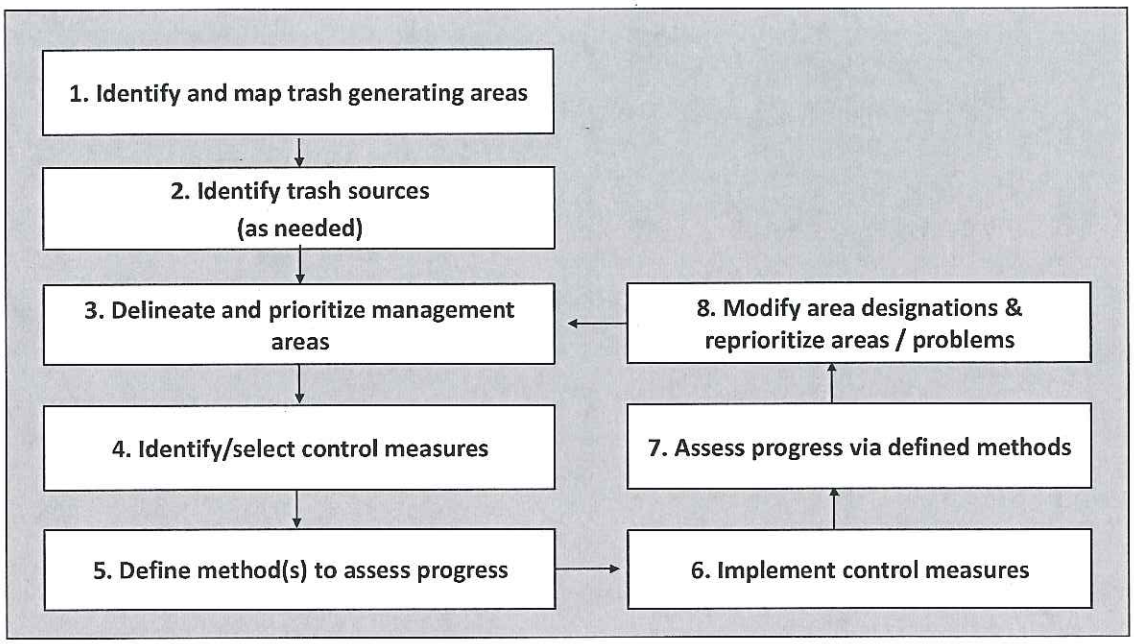

Figure 1-1. Eight-step framework for developing, implementing and refining Long-Term Trash Reduction Plans.

The workgroup agreed that as the first step in the framework, Permittees would identify very high, high, moderate, and low trash generating areas in their jurisdictional areas. Trash generation rates developed through the *BASMAA Baseline Trash Generation Rates Project* (as discussed below) were used as a starting point for differentiating and delineating land areas with varying levels of trash generation. Permittees would then use local knowledge and field and/or desktop assessments to confirm or refine the level of trash generation for specific areas within their jurisdiction. Each Permittee would then develop a map depicting trash generation categories within their jurisdiction.

As a next step, Permittees would then delineate and prioritize Trash Management Areas (TMAs) where specific control measures exist or are planned for implementation. TMAs delineated by Permittees are intended to serve as reporting units in the future. Reporting at the management area level provides the level of detail necessary to demonstrate implementation and progress towards trash reduction targets.

Once control measures are selected and implemented, Permittees will evaluate progress toward trash reduction targets using outcome-based assessment methods. As the results of the progress assessments are available, Permittees may choose to reprioritize trash management areas and associated control measures designed to improve trash reduction within their jurisdictions.

1.2.2 BASMAA Generation Rates Project

Through approval of a BASMAA regional project in 2010, Permittees agreed to work collaboratively to develop a regionally consistent method to establish trash generation rates within their jurisdictions. The project, also known as the *BASMAA Trash Generation Rates Project* (Generation Rates Project) assisted Permittees in establishing the rates of trash generation and identifying very high, high, moderate and low trash generating areas.

The term "trash generation" refers to the rate at which trash is produced or generated onto the surface of the watershed and is potentially available for transport via MS4s to receiving waters. Generation rates do not explicitly take into account existing control measures that intercept trash prior to transport. Generation rates are expressed as trash volume/acre/year and were established via the Generation Rates Project.

In contrast to trash generation, the term "trash loading" refers to the rate at which trash from MS4s enters receiving waters. Trash loading rates are also expressed as trash volume/acre/year and are equal to or less than trash generation rates because they account for the effects of control measures that intercept trash generated in an area before it is discharged to a receiving water. Trash loading rates are specific to particular areas because they are dependent upon the effectiveness of control measures implemented within an area. Figure 1-2 illustrates the difference between trash generation and loading.

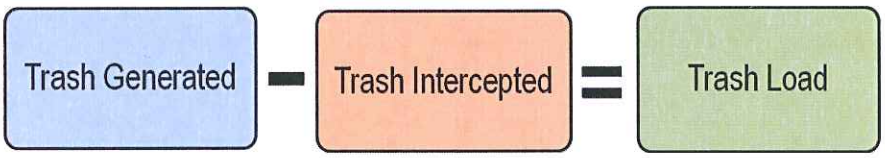

Figure 1-2. Conceptual model of trash generation, interception and load.

Trash generation rates were estimated based on factors that significantly affect trash generation (i.e., land use and income). The method used to the establish trash generation rates for each Permittee builds off "lessons learned" from previous trash loading studies conducted in urban areas (Allison and Chiew 1995; Allison et al. 1998; Armitage et al. 1998; Armitage and Rooseboom 2000; Lippner et al. 2001; Armitage 2003; Kim et al. 2004; County of Los Angeles 2002, 2004a, 2004b; Armitage 2007). The method is based on a conceptual model developed as an outgrowth of these studies (BASMAA 2011b).

Trash generation rates were developed through the quantification and characterization of trash captured in Water Board-recognized full-capture treatment devices installed in the San Francisco Bay area. Trash generation rates estimated from this study are listed for each land use type in Table 1-1. Methods used to develop trash generation rates are more fully described in BASMAA (2011b, 2011c, and 2012).

Table 1-1. San Francisco Bay Area trash generation rates by land use (gallons/acre/year).

Land Use	Low[b]	Best[b]	High[b]
Commercial & Services	0.7	**6.2**	17.3
Industrial	2.8	**8.4**	17.8
Residential[a]	0.3 - 30.2	**0.5 - 87.1**	1.0 - 257.0
Retail[a]	0.7 - 109.7	**1.8 - 150.0**	4.6 - 389.1
K-12 Schools	3	**6.2**	11.5
Urban Parks	0.5	**5.0**	11.4

[a] For residential and retail land uses, trash generation rates are provided as a range that takes into account the correlation between rates and household median income.

[b] For residential and retail land uses: Low = 5% confidence interval; Best = best fit regression line between generation rates and household median income; and, High = 95% confidence interval. For all other land use categories: High = 90th percentile; Best = mean generation rate; and, Low = 10th percentile.

1.3 Organization of Long-Term Plan

This Long-Term Plan is organized into the following sections:

1.0 Introduction;
2.0 Scope of the Trash Problem;
3.0 Trash Management Areas and Control Measures;
4.0 Progress Assessment Strategies; and
5.0 References

Section 2.0 is intended to provide a description of the extent and magnitude of the trash problem in the County of Alameda. Control measures that will be implemented by the County of Alameda as a result of this Long-Term Plan are described in section 3.0. Section 4.0 describes the methods that will be used to assess progress toward trash reduction targets.

2.0 Scope of the trash Problem

2.1 Permittee Characteristics

Unincorporated Alameda County communities include Ashland, Castro Valley, Cherryland, Fairview, San Lorenzo, and Sunol and have an urban jurisdictional land area that totals 11,723 acres. According to the 2010 Census, the collective population of the Unincorporated Alameda County communities is 132,409 with a population density of 8,000 people per square mile and average household size of 2.9. Of the total residents, 24.6% are under the age of 18, 9.2% are between 18 and 24, 28.3% are between 25 and 44, 27.4% are between 45 and 64, and [10.5% are 65 or older. The median household income was $60,541.00 in 2000.

The major roads and their exchanges under Caltrans jurisdiction in the Unincorporated County include I-880, I-580, I-238 and East 14th Street. Unincorporated Area of Alameda County has two Bay Area Rapid Transit (BART) stations including Castro Valley and San Leandro/Bay Fair. BART, Amtrack, and Union Pacific rails run through portions of the Unincorporated Area of Alameda County.

The County Unincorporated Area is primarily comprised of six (6) land uses and a category of "other" which includes vast parks and open space in the hills to the east. Land uses for the Unincorporated Area of Alameda County are depicted in ABAG (2005) are provided in Table 2-1.

Table 2-1. Percentages of the *County of Alameda*'s jurisdictional area[1] within land use classes identified by ABAG (2005)

Land Use Category	Jurisdictional Area (Acres)	% of Jurisdictional Area
Commercial and Services	581.1	3.5
Industrial	271.1	1.6
Residential	9811.4	60
Retail	248.9	1.5
K-12 Schools	528.4	1.7
Urban Parks	282.0	2.0
Other)	4,605.4	35.5

2.2 Trash Generating Areas

[1] A Permittee's jurisdictional area is defined as the urban land area within a Permittee's boundary that is not subject to stormwater NPDES Permit requirements for traditional and non-traditional small MS4s (i.e. Phase II MS4s) or the California Department of Transportation, or owned and maintained by the State of California, the U.S. federal government or other municipal agency or special district (e.g., flood control district).

2.2.1 Generation Categories and Designation of Areas

The process and methods used to identify the level of trash generation within the County of Alameda are described in this section and illustrated in Figure 2-1.

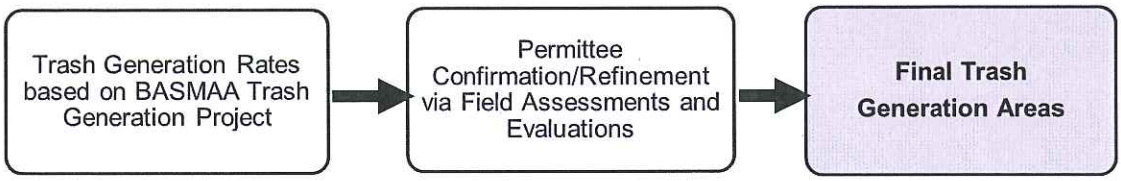

Figure 2-1. Development of Trash Generation Areas

As a first step, trash generation rates developed through *the BASMAA Trash Generation Rates Project* were applied to parcels within the County of Alameda based on current land uses and 2010 household median incomes. A Draft Trash Generation Map was created as a result of this application. The draft map served as a starting point for the County of Alameda to identify trash generating levels. Levels of trash generation are depicted on the map using four trash generation rate (gallons/acre/year) categories that are symbolized by four different colors illustrated in Table 2.2.

Table 2-2. Trash generation categories and associated generation rates (gallons/acre/year).

Category	Very High	High	Moderate	Low
Generation Rate (gallons/acre/year)	> 50	10-50	5-10	< 5

The County of Alameda then reviewed and refined the draft trash generation map to ensure that trash generation categories were correctly assigned to parcels or groups of parcels. County staff refined maps using the following process:

1. Based upon our knowledge of trash generation and problem areas within the County, staff identified areas on the draft map that potentially had incorrect trash generation category designations.
2. Trash generation category designations initially assigned to areas identified in step #1 were then assessed and confirmed/refined by the County using the methods listed below.

a. On-Land Visual Assessments

To assist Permittees with developing their trash generation maps, BASMAA developed a *Draft On-land Visual Trash Assessment Protocol (Draft Protocol)*. The Draft Protocol entails walking a street segment and visually

observing the level of trash present on the roadway, curb and gutter, sidewalk, and other areas adjacent to the street that could potentially contribute trash to the MS4. Based on the level of trash observed, each segment (i.e., assessment area) was placed into one of four on-land assessment condition categories that are summarized in Table 2-3. Using the Draft Protocol the County assessed a total of 20 areas to assist in conducting/refining trash generating area designations.

Table 2-3. Definitions of on-land trash assessment condition categories.

On-land Assessment Condition Category	Summary Definition
A (Low)	Effectively no trash is observed in the assessment area.
B (Moderate)	Predominantly free of trash except for a few pieces that are easily observed.
C (High)	Trash is widely/evenly distributed and/or small accumulations are visible on the street, sidewalks, or inlets.
D (Very High)	Trash is continuously seen throughout the assessment area, with large piles and a strong impression of lack of concern for litter in the area.

b. Querying Municipal Staff or Members of the Public

Staff from the County's Clean Water, Municipal Maintenance and Operations, Engineering, and Environmental Services sections reviewed the Draft Trash Generation Map. The County's staff in charge of street sweeping, on-land clean-up, and inlet cleaning participated and were a vital part of the roundtable discussions to help refine the accuracy of the trash generation maps.

c. Reviewing Municipal Operations Data

M&O staff provided data on existing practices and schedule for street sweeping, on-land clean-ups, and inlet cleaning. Flood engineers helped delineate drainage areas and determine placement for future inline full trash capture devices.

d. Viewing Areas via Goggle Maps – Street Views

Staff used Google Maps- Street View to confirm land use conditions in several areas and help refinement of trash generation maps. The method used to determine trash generation uses land use and socio-economic levels. Some communities in the unincorporated area of the Alameda County are home to a concentration of retired persons on a fixed income. Several of the areas thought to be considered "low" by County M&O field staff where shown as "medium" on the trash generation map. Staff

searched over 75 street views. This activity was very helpful in refining our maps and determining and worked well with on-land visual assessment.

3. Based on assessments conducted to confirm/refine trash generation category designations, the County created a final trash generation map that depicts the most current understanding of trash generation within the County of Alameda. The County documented this process by tracking the information collected through the assessments and subsequent refinements to the Draft Trash Generation Map. The County of Alameda's Final Trash Generation Map is included as Attachment 1.

2.2.2 Summary of Trash Generating Areas and Sources

Summary statistics for land use and trash generation categories generated through the mapping and assessment process are presented in Table 2.4. Please refer to Attachment 1 for Alameda County Unincorporated Area final trash generation map.

Table 2-4. Percentage of jurisdictional area within the County of Alameda assigned to each trash generation category. (Trash generation calculations for the County currently includes East 14th Street, a Caltrans jurisdictional area. As a result, a higher than accurate total for "high" trash generation area is shown. Future amendments will address the calculation error.)

Trash Generation Category	Commercial and Services	Industrial	Residential	Retail	K-12 Schools	Urban Parks	Other
Very High	0.0	0.0	0.0	0.0	0.0	0.0	0.0
High	0.0	0.0	21.5	78.5	0.0	0.0	0.0
Medium	10.7	3.6	67.9	3.8	9.9	2.8	1.3
Low	.5	.5	55	0.0	.5	.5	43

3.0 Trash management areas and control measures

This section describes the control measures that the County of Alameda has or plans to implement to solve trash problems and achieve a target of 100% (i.e. full) trash reduction from their MS4 by July 1, 2022. The selection of control measures described in this section is based on the County of Alameda's current understanding of trash 0problems within its jurisdiction and the effectiveness of control measures designed to reduce trash impacts associated with MS4 discharges. Information on the effectiveness of some trash control measures is currently lacking and therefore in the absence of this information, the County based its selection of control measures on existing effectiveness information, their experience in implementing trash controls and knowledge of trash problems, and costs of implementation. As knowledge is gained through the implementation of these control measures, the County may choose to refine their trash control strategy described in this section. If significant revisions or amendments are made, a revised Long-Term Plan will be submitted to the Water Board through the County of Alameda's annual reporting process.

3.1 Management Area Delineation and Prioritization

Consistent with the long-term plan framework, the County of Alameda delineated and prioritized trash management areas (TMAs) based on the geographical distribution of trash generating areas, types of trash sources, and current or planned control measure locations. TMAs are intended to form the management units by which trash control measure implementation can be tracked and assessed for progress towards trash reduction targets. Once delineated, TMAs were also prioritized for control measure implementation. The County of Alameda's primary management areas were selected based on the spatial distribution of trash generating areas and the location of specific existing or planned management actions within County's jurisdiction. County staff used the following procedure to designate TMAs:

The County plans to use in-line full trash capture devices as a primary method to manage trash. While the initial cost of the in-line devices are more than the individual drop inlet full capture devices, the life span of the in-line devices are much longer and the associated long term labor costs are far less. Utilizing the County's Final Trash Generation Map, Flood Control staff engineer identified the most viable and feasible places to install in-line full trash capture devises while trying to contain the most high and medium trash generation area as possible. Eight sites for in-line full trash capture devices to be installed are identified in the plan. We are considering the drainage area associated with each full trash capture device to be one TMA (see Attachment 2, County of Alameda Trash Management Areas Map). All of the high and medium trash generation area outside of the TMAs utilizing an in-line full trash capture devise is consider to be TMA 9 and divided into 4 geographic sub-area (9a-9d). The sub-area are geographically contiguous or in close proximity. The County plans to install full capture devises in Sub-area 9a drop inlets and may install in parts of Sub-area 9b drop-inlets. The portion of East 14th Street that runs through the Unincorporated Areas of Alameda County is in Caltrans' Jurisdiction. The trash generation calculations for the County currently includes this area and as a result, shows a higher than accurate total

for "high" trash generation area. The may be amended to correct the calculation error. Currently, the County's service agreement with Caltrans is limited to the County being responsible for servicing trash receptacles only if the liner in the receptacles are missing or broken. The County will discuss the possibility of broadening the service agreement. At this time, Caltrans is responsible for trash receptacle management, street sweeping, drop inlet cleaning and other trash management activities in Caltrans jurisdictional area within including I-880, I-580, I-238 and East 14th Street/ Mission Ave.

Prioritization factors include amount of potential containment of trash from high and medium trash generation area, traffic volume (higher vehicle and pedestrian traffic areas given higher priority), and known troubled areas as well as economic feasibility. The priority assigned to each TMA is included in Table 3.1. and given a letter grade. The higher the letter, the closer the intended installation date of the full capture devise. In TMA 9a-9d, the higher prioritized area will be address sooner.

A map depicting the County's TMAs is included as Attachment 2. All urban jurisdictional areas within the County are included within a TMA. The amount of jurisdictional land area and associated trash condition categories for each TMA are included in Table 3.1.

Table 3-1. Jurisdictional area and percentage of each Trash Management Area (TMA) comprised of trash generation categories and set priority

Priority	TMA	Jurisdictional Area (Acres)	Trash Generation Category			
			Very High	High	Moderate	Low
B3	1	1,376.5	0.0%	3%	5.3%	91.7%
B2	2	1446.3	0.0%	1.1%	17.5%	81.4%
A4	3	201.4	0.0%	19%	74%	7%
B1	4	595.7	0.0%	4.9%	39.1%	56%
A1	5/7	806.6	0.0%	11.3%	63.5%	24.9%
A3	6	797.1	0.0%	5.2%	16.1%	78.7%
C1	8	77.3	0.0%	9.4%	13.2%	77.4%
A2	9a	232	0.0%	~10%	~88%	~2%
B4	9b	569	0.0%	~1.5%	~45%	~53.5%
C2	9c	1,002	0.0%	~0%	~25%	~75%
C3	9d	1,783	0.0%	~1%	~19%	~80%

3.2 Current and Planned Trash Control Measures

The County has addressed trash issues through its Maintenance and Operation actions including street sweeping, drop-inlet cleaning, county crew on-land and channel/creek clean-ups, and through enforcement, community land and creek clean-ups, and public outreach and education. The County plans to use in-line full trash capture devices as a primary method to manage trash in medium and high trash generation areas (see Attachment 2 County of Alameda Trash Management Areas map).

On-land Trash Cleanups – Continued Pre-MRP Actions: Community cleanup events, Adopt-A-Spot/Creek programs, Work Furlough Program, illegal dumping response, etc. take place throughout the year as one-day events or ongoing programs to beautify and remove trash from neighborhoods and watersheds. These events and programs are primarily Permittee led with some as collaborative events.

New/Enhanced/Planned Post-MRP Actions Initiated:
-Two Annual FTE county staff are dedicated to on-land trash removal.
-Through the County's Work Furlough Program, three "weekend workers" remove trash on-land in the Unincorporated Area County, full-time on Saturdays and Sundays throughout the year.
-10 active spot's adopted by community groups/members through the County's Adopt-A-Spot/Creek programs.
-Several annual community cleanup events are organized and/or supported by the County including Unincorporated Area Fall Clean-Up and Beautification in Ashland and Cherryland and sections of San Lorenzo; Cull Canyon Reservoir Earth Day Clean-Up; Castro Valley Earth Day Clean-up; Sunol AgPark (organic farm) Hedgerows, Sunol Community volunteer workdays (6/year) at the hedgerow for students and community volunteers; Schoolwide Campus Trash Cleanup at Palomares Watershed Science Expo; Bay Trees Park, Castro Valley - workdays (6/year); Castro Valley Creek, Castro Valley - Coastal Cleanup Day.

Street Sweeping –Continued Pre-MRP Actions: The County of Alameda's street sweeping program included sweeping most streets in Castro Valley, San Lorenzo, Ashland, Cherryland, Fairview, and Sunol once per month. The community of Ashland is swept 2-4/month. Posting of parking enforcement signs for street sweeping occurs throughout the community of Ashland and about one quarter of the community of San Lorenzo. No other communities have parking enforcement signs for street sweeping.

New/Enhanced/ Post-MRP Actions Initiated/Planned: Commercial/retail corridors – Hesperian Blvd, San Lorenzo, Castro Valley Blvd, Castro Valley, & Redwood Rd, Castro Valley are now swept weekly and sweeping is done in the late night/early morning hours while cars are not parked on these streets and there is little road use. Enhanced sweeping is planned for high and medium trash generation areas outside of a full trash capture TMA. The County may revise the service agreement with Caltrans to include sweeping East 14th Street (under Caltrans jurisdiction).

Storm Drain Inlet Maintenance – Continued Pre-MRP Actions: Inspect all storm drains at least once a year and clean as needed. Respond to complaints. More frequent cleaning routinely done at known needed areas.

New/Enhanced Post-MRP Actions Initiated/Planned: Continue to implement pre-MRP actions. The County developed an on-line service request system that the public can access via the Alameda County Public Works Agency website and use to report illegal dumping and other trash issues. The County now offers Mobile Citizen, a mobile app used to report issues such as illegal dumping and other trash issues and request for services by simply taking a photo and submitting it directly to the Public Works Agency.

Activities to Reduce Trash from Uncovered Loads – Continued Pre-MRP Actions: Alameda County has language in our hauling service contract(s) that requires contracted trash and construction debris haulers to cover loads when transporting trash and debris to municipally or privately-owned landfills and transfer stations.

New/Enhanced Post-MRP Actions Initiated/Planned: The County's Public Works Agency and Code Enforcement Department are working together to establish an enhanced enforcement program for vehicles with uncovered loads and considering the following:
-Adoption of an ordinance prohibiting the transportation of trash or debris without a cover
-Citations and fines for vehicles spotted on roads in an individual Permittee's jurisdictional area with uncovered loads; or,
-Landfill/Transfer Station "incentive" or "disincentive" efforts such as distribution of tarps for a fee to haulers or other vehicles that arrive at landfills and transfer stations with uncovered loads. Each subsequent visit without a tarp will result in an additional fee for a tarp, prompting haulers to bring their own tarp (if this is not feasible, than another "point of contact" effort.

Anti-littering and Illegal Dumping Enforcement Activities – Continued Pre-MRP Actions: Received and responded to complaints from citizens. Incoming complaint/service requests go to the Alameda County Public Works Agency dispatch office where they generate a work order. Depending on the nature of the call, either an illicit discharge inspector or County's M&O staffs will follow through with clean-up and abatement and enforcement (coordinating with County Code Enforcement and/or other appropriate party).

New/Enhanced Post-MRP Actions Initiated/Planned: Alameda County implements an active anti-littering and illegal dumping enforcement program that includes:
-Thorough investigations of complaints received from County's illegal dumping hotline, online service request webpage, and/or Mobile Citizen app;
-The implementation of enforcement procedures including citations (as warranted);
-The collection of evidence (e.g., names, addresses, etc.) from illegal dump sites (i.e., public and private) in an attempt to identify offenders;
-Use of Surveillance Cameras – Installation and use of surveillance cameras to deter and prosecute illegal dumping at high priority sites identified within the County's jurisdictional area.

-Use of Physical Barriers or Improvements –Installation of physical barriers (e.g., fences, walls) or physical improvements (e.g., maintenance) which eliminate or deter illegal dumping at high priority sites identified within the County's jurisdictional area.
-The County plans to assess the County's anti-littering and illegal dumping enforcement program to identify the most effective and efficient methods and modify the program accordingly.

Improved Trash Bins/Container Management – Continued Pre-MRP Actions: Castro Valley Sanitary District and Oro Loma Sanitary manage solid waste and recycling in the Unincorporated Area of Alameda County. The County does not maintain public trash containers. Caltrans maintains East 14th Street trash containers however, if the trash container liner is broken or missing, the County will maintain the container as needed. East Bay Transit manages trash bins attached to the bus stop shelters.

New/Enhanced Post-MRP Actions Initiated/Planned: The County installed and maintains a trash container at Castro Valley Creek Park. The County will evaluate service agreements with Caltrans and East Bay Transit and consider broadening the County's role in trash container management. The County is considering placing trash containers in high and medium priority areas that have high pedestrian traffic and is looking to the City of Hayward's lessons learned with their innovative trash receptacle efforts.

Full-Capture Treatment Devices – The County plans to use in-line full trash capture devices as a primary method to manage trash. While the initial cost of the in-line devices are more than the individual drop inlet full capture devices, the life span of the in-line devices are much longer and the associated long term labor costs are far less. Utilizing the County's Final Trash Generation Map, Flood Control staff engineer identified the most viable and feasible places to install in-line full trash capture devises while trying to contain the most high and medium trash generation area as possible. Eight sites for in-line full trash capture devices to be installed are identified in the plan. We are considering the drainage area associated with each full trash capture device to be one TMA (see Attachment 2, Trash Management Area Map for the County of Alameda and Attachment 3 County of Alameda Large Trash Capture Devises). All of the area outside of the TMAs utilizing an in-line full trash capture devise is consider to be TMA 9 and divided into 4 geographic sub-area (9a-9d). The sub-area are geographically contiguous or in proximity. The County plans to install full capture devises in Sub-area 9a drop inlets.

3.2.1 Priority A1 (TMA #5/7)

TMA #5/7 has a mix of residential and retail area and includes several high use roads. The County plans to install two in-line full trash capture devices by 6/30/2014 as a primary method to manage trash in TMA #5/7 (see Attachment B, County of Alameda Trash Management Area) TMA #5/7 is define by the drainage area of two in-line full trash capture devices and totals 1,163 acres of land. Installation of the devises involve engineering design and construction. Devises will be located in a storm drain line, underground, and will be accessible through a vault of manhole covers. County M&O

staff will use a vac-truck to clean devise. While recommend maintenance is once a year, the County plans on maintaining the units semiannually for the first two years and then evaluate the reports to determine future maintenance schedule (see Attachment #4, Trash Capture Device Maintenance Report Form).

In addition to full capture in TMA #5/7, the County plans to continue on-land clean-ups, street sweeping, annual and as needed drop-inlet cleaning as described above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

A portion of East 14th Street that runs through the Unincorporated Areas of Alameda County is in Caltrans' Jurisdiction and is within TMA #5/7. Currently, the County's service agreement with Caltrans is limited to the County being responsible for servicing trash receptacles only if the liner in the receptacles are missing or broken. The County will discuss the possibility of broadening the service agreement. At this time, Caltrans is responsible for trash receptacle management, street sweeping, drop inlet cleaning and other trash management activities along East 14th Street.

3.2.2 Priority A2 (TMA #9c)

TMA #9a has a mix of residential and retail area, a High School and, high vehicle and pedestrian traffic. The high TGA area in TMA #9a is Lewelling Blvd. Lewelling Blvd essentially parallels San Lorenzo Creek in this TMA and drains into San Lorenzo Creek through several smaller outfalls. The County will install full trash capture inserts into the drop inlets along Lewelling Blvd by 6/30/2014. The collective drainage area of the full capture devices in TMA #9c is 232 acres.

In addition to full capture in TMA #9c, the County plans to continue on-land clean-ups, street sweeping, annual and as needed drop-inlet cleaning, and is considering placing trash containers along Lewelling Blvd. See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.3 Priority A3 (TMA #6)

TMA #6 has a mix of residential and retail area and includes a portion of Hesparian Blvd., a high use road. The County plans to install an in-line full trash capture devices by 6/30/2015 as a primary method to manage trash in TMA #6 (see Attachment B, County of Alameda Trash Management Area and Attachment 3 County of Alameda Large Trash Capture Devises) TMA #6 is define by the drainage area of the in-line full trash capture devices and totals 829 acres of land. Installation of the devise involves engineering design and construction. The devise will be located in a storm drain line, underground, and will be accessible through a vault or manhole covers. County M&O staff will use a vac-truck to clean devise. While recommend maintenance is once a year, the County plans on maintaining the unit semiannually for the first year and then evaluate the reports from this and other in-line full capture devises to determine future

maintenance schedule (see Attachment #4, Trash Capture Device Maintenance Report Form).

In addition to full capture in TMA #6, the County plans to continue on-land clean-ups, street sweeping (will continue enhanced sweeping until full trash capture devise installation completed), annual and as needed drop-inlet cleaning, and is considering placing trash containers along Hesparian Blvd. See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.4 Priority A4 (TMA #3)

TMA #3 has a mix of residential and retail area and includes portions of Castro Valley Blvd. and Redwood Road, high vehicle and pedestrian traffic roads. The County plans to install an in-line full trash capture devices by 6/30/2015 as a primary method to manage trash in TMA #6 (see Attachment B, County of Alameda Trash Management Area and Attachment 3 County of Alameda Large Trash Capture Devises) TMA #3 is define by the drainage area of the in-line full trash capture device and totals 207 acres of land. Installation of the devise involves engineering design and construction. The devise will be located in a storm drain line, underground, and will be accessible through a vault or manhole covers. County M&O staff will use a vac-truck to clean devise. While recommend maintenance is once a year, the County plans on maintaining the units semiannually for the first year and then evaluate the reports from this and other in-line full capture devises to determine future maintenance schedule (see Attachment #4, Trash Capture Device Maintenance Report Form).

In addition to full capture in TMA #3, the County plans to continue on-land clean-ups, street sweeping (will continue enhanced sweeping until full trash capture devise installation completed), , annual and as needed drop-inlet cleaning, and is considering placing trash containers along Castro Valley Blvd and Redwood Rd. See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.5 Priority B1 (TMA #4)

TMA #4 has a mix of residential and retail area and includes portions of East 14th Street, high vehicle and pedestrian traffic. The County plans to install an in-line full trash capture devices by 6/30/2016 as a primary method to manage trash in TMA #4 (see Attachment B, County of Alameda Trash Management Area and Attachment 3 County of Alameda Large Trash Capture Devises) TMA #4 is define by the drainage area of the in-line full trash capture device and totals 674 acres of land. Installation of the devise involves engineering design and construction. The devise will be located in a storm drain line, underground, and will be accessible through a vault or manhole covers. County M&O staff will use a vac-truck to clean devise. While recommend maintenance is once a year, the County plans on maintaining the units semiannually for the first year and then evaluate the reports from this and other in-line full capture devises to determine future maintenance schedule (see Attachment #4, Trash Capture Device Maintenance Report Form).

In addition to full capture in TMA #4, the County plans to continue on-land clean-ups, street sweeping (will continue enhanced sweeping until full trash capture devise installation completed), and annual and as needed drop-inlet cleaning. See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

A portion of East 14th Street that runs through the Unincorporated Areas of Alameda County is in Caltrans' Jurisdiction and within TMA #4. Currently, the County's service agreement with Caltrans is limited to the County being responsible for servicing trash receptacles only if the liner in the receptacles are missing or broken. The County will discuss the possibility of broadening the service agreement. At this time, Caltrans is responsible for trash receptacle management, street sweeping, drop inlet cleaning and other trash management activities along East 14th Street.

3.2.6 Priority B2 (TMA #2)

TMA #2 has a mix of residential and retail area and includes portions of Castro Valley Blvd., Lake Chabot Road, and Redwood Road, high vehicle and pedestrian traffic roads. The County plans to install an in-line full trash capture devices by 6/30/2016 as a primary method to manage trash in TMA #2 (see Attachment B, County of Alameda Trash Management Area and Attachment 3 County of Alameda Large Trash Capture Devises) TMA #2 is define by the drainage area of the in-line full trash capture device and totals 1,437 acres of land. Installation of the devise involves engineering design and construction. The devise will be located in a storm drain line, underground, and will be accessible through a vault or manhole covers. County M&O staff will use a vac-truck to clean devise. While recommend maintenance is once a year, the County plans on maintaining the units semiannually for the first year and then evaluate the reports from this and other in-line full capture devises to determine future maintenance schedule (see Attachment #4, Trash Capture Device Maintenance Report Form).

In addition to full capture in TMA #2, the County plans to continue on-land clean-ups, street sweeping (will continue enhanced sweeping until full trash capture devise installation completed), annual and as needed drop-inlet cleaning, and is considering placing trash containers along Castro Valley Blvd, Chabot Road, and Redwood Rd. See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.7 Priority B3 (TMA #1)

TMA #1 has a mix of residential and retail area and includes portions of Castro Valley Blvd. and Redwood Road, high vehicle and pedestrian traffic roads. The County plans to install an in-line full trash capture devices by 6/30/2016 as a primary method to manage trash in TMA #1 (see Attachment B, County of Alameda Trash Management Area and Attachment 3 County of Alameda Large Trash Capture Devises) TMA #1 is define by the drainage area of the in-line full trash capture device and totals 1,391 acres of land. Installation of the devise involves engineering design and construction.

The devise will be located in a storm drain line, underground, and will be accessible through a vault or manhole covers. County M&O staff will use a vac-truck to clean devise. While recommend maintenance is once a year, the County plans on maintaining the units semiannually for the first year and then evaluate the reports from this and other in-line full capture devises to determine future maintenance schedule (see Attachment #4, Trash Capture Device Maintenance Report Form).

In addition to full capture in TMA #1, the County plans to continue on-land clean-ups, street sweeping (will continue enhanced sweeping until full trash capture devise installation completed), annual and as needed drop-inlet cleaning, and is considering placing trash containers along Castro Valley Blvd and Redwood Rd. See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.8 Priority B4 (TMA #9b)

TMA #9b has a mix of residential, commercial and retail area and includes portions of East 14th Street, high vehicle and pedestrian traffic. The portion of East 14th Street that runs through TMA #9b is in Caltrans' jurisdiction. The trash generation calculations for the County currently includes this area and, as a result, shows a higher than accurate total for "high" trash generation area. This calculation may be amended to correct the calculation error. Currently, the County's service agreement with Caltrans is limited to the County being responsible for servicing trash receptacles only if the liner in the receptacles are missing or broken. The County will discuss the possibility of broadening the service agreement. At this time, Caltrans is responsible for trash receptacle management, street sweeping, drop inlet cleaning and other trash management activities in Caltrans jurisdictional areas including I-580, I-238 and East 14th Street in TMA #9b. The total area of TMA #9b is 569 acres.

The County plans to continue and enhance on-land clean-ups, street sweeping/ with enhanced street sweeping TBD by 6/2016), and annual and as needed drop-inlet cleaning to address isolated high TGA area of TMA #9b , See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.9 Priority C1 (TMA #8)

TMA #8 includes a portion of the I-580/I-238 interchange that is Caltrans jurisdiction. The remainder of the TMA is residential. Currently, the County's service agreement with Caltrans is limited to the County being responsible for servicing trash receptacles only if the liner in the receptacles are missing or broken. Caltrans has not trash receptacles in TMA #8. The County will discuss the possibility of broadening the service agreement. At this time, Caltrans is responsible for street sweeping, drop inlet cleaning and other trash management activities in the Caltran portion of TMA. The County was, though is not now, considering installing a full capture device unit in TMA #8. The total area of TMA #8 is 101 acres.

The County plans to continue and enhance on-land clean-ups, street sweeping, and annual and as needed drop-inlet cleaning to address isolated medium TGA area of TMA #8, See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.10 Priority C2 (TMA #9c)

TMA #9c is predominantly residential and shoreline area with some commercial and retail, areas. TMA #9c includes one small segment of Hesparian Blvd. and the northern side of a portion of West A Street that is not included in an in-line full trash capture device drainage area. The County is considering the installation of drop inlet full capture devices along the portion of Hesparian Blvd and W. A Street in TMA 9c. The total area of TMA #9c is 1006 acres.

The County plans to continue and enhance on-land clean-ups, street sweeping , enhance street sweeping, and annual and as needed drop-inlet cleaning to address isolated medium TGA areas of TMA #9c, See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.11 Priority C3 (TMA #9d)

TMA #9d is predominantly residential with some retail areas and includes a portion of Caltrans jurisdictional area including the I-580/I-238/Foothill Blvd. interchange. TMA #9d includes one small segment of Redwood Road not included in an in-line full trash capture device drainage area. The County is considering installation of drop inlet full capture devices along the portion of Redwood Rd in TMA 9d.

The County plans to continue and enhance on-land clean-ups, street sweeping and enhance street sweeping, and annual and as needed drop-inlet cleaning to address isolated medium TGA area of TMA #9d, See description above in Section 3.2 as well as the other Jurisdiction-wide activities described in Section 3.2.4

3.2.12 Jurisdiction-wide Control Measures

In addition to the trash control measures implemented throughout Alameda County Unincorporated Area described Section 3.2 other trash management implemented include:

Alameda County Waste Management Authority Single-Use Bag Ban Ordinance
Single-Use plastic bags were a significant component of the litter found in storm drains and water bodies throughout Alameda County. To address this issue, the Alameda County Waste Management Authority has adopted a single-use bag ban. As of January 1, 2013, all grocery stores, supermarkets, mini-marts, convenience stores, liquor stores, pharmacies, drug stores or other entities that sell milk, bread, soda and snack foods (all four items) and/or alcohol (Type 20 or21 license) in Alameda County must comply with the Single-Use Bag Ban Ordinance.

Single-Use Bag Requirement: Affected stores may no longer provide customers with single-use bags at check-out.

Bag Sales Requirements:

- Affected stores that distribute recycled paper or reusable bags must charge 10 cents or more per bag. These bags must meet the specifications in the Ordinance.
- All proceeds from the sale of recycled paper bags and reusable bags are retained by the retailer without any restrictions on their use

A copy of the Ordinance is available on the Alameda County Waste Management Authority's website: http://reusablebagsac.org/ordinancetext.html

The County of Alameda is a member of ACCWP. The jurisdiction-wide control measures described below will be conducted through participation in ACCWP.

Litter Outreach to K-12 Schools
K-12 schools are often high litter generation areas. ACCWP has developed a request for proposal for a four-year litter reduction education/outreach grant directed at K-12 schools throughout Alameda County. ACCWP intends to award a total of up to $125,000 per year to up to 4 successful applicants. The goals of the project are to clearly reduce the amount of litter at the participating schools and incorporate institutional changes at the schools so that litter will continue to be reduced in the future. Implementation is scheduled to begin in the 2014/15 school year. The request for proposal will include a requirement to evaluate the level of litter reduction achieved. A description of the successful proposals will be included in the ACCWP Fiscal Year 2013/14 Annual Report.

"Be the Street" Youth Anti-Litter Advertising Campaign
Intentional litter by youth has been found to be a significant contributor to litter problems. To address this issue, ACCWP has participated in the development and

implementation of the Be the Street campaign. Be the Street is a Bay Area wide outreach effort that takes a Community Based Social Marketing approach to encourage youth to keep their community clean (http://www.bethestreet.org/). The intent of the campaign is to make "no-littering" the norm among the target audience (youth between the ages of 14 and 24). The campaign is a three-year effort that began in fiscal year 2011-12 and will run through 2013-14. ACCWP has been participating in and providing financial support to the Be the Street campaign since its inception. The campaign will be evaluated in the spring of 2014. Depending upon the results of the evaluation, ACCWP may continue to participate in this or similar efforts in future years.

Multi-Family Dwelling Litter Outreach

Multi-family dwellings (i.e., apartment buildings and condominium complexes) are often areas of high trash generation. ACCWP is working with the City of Livermore to develop a litter reduction pilot targeting multi-family complexes known to be sites with significant litter issues. The pilot includes the following apartment building and condominium complexes: Livermore Garden Apartments (5720 East Avenue), La Castilleja (975 Murrieta Boulevard), and Castilleja Del Arroyo (1001 and 1009 Murrieta Boulevard).

- December 2013: Pre-campaign Measurement – ACCWP and the City will take baseline measurements of all three sites. Methods of measurement will include taking photos of on-site litter, as well as collecting, characterizing and counting the litter using the Ocean Conservancy's Volunteer Trash Data Form. (Adopt A Creek Spot volunteers use this Data Form to characterize and count the trash collected from the Trash Hot Spot located behind the condominium complexes on Coastal Clean-up Day.) Areas to be measured include landscaped and other common areas, the sidewalk, gutter and streets located in front of the sites. All three property managers/volunteers will collect one week's worth of on-site litter.

- November – December 2013: Research – All three property managers will be interviewed by City staff using twenty-five questions developed by the ACCWP. The interview results will help define the target audience(s) (i.e., age groups, income level, ethnic groups, etc.) and determine outreach tactics (i.e., face-to-face, signage, printed materials, etc.) This information will also assist the City and ACCWP in developing appropriate messaging.

- November 2013 – January 2014: Plan – One of the three sites will be chosen as the "Control" site. In addition, outreach strategies and tactics will be selected for the "Active" sites.

- February 2014: Concept/Design/Content Production – Selected outreach tactics will be designed and produced for the Active sites.

- February 2014: Multi-cultural Advising, Translation – Consultant will advise on outreach tactics and messaging, and will provide translation as needed.

- March 2014 – May 16, 2014: Outreach – Outreach tactics will be rolled out at Active sites.

- May 17, 2014 – May 31, 2014: Post-campaign Measurement — City staff and ACCWP will duplicate the pre-campaign measurement methodologies at all three sites, including the Control. All three property managers/volunteers will collect one week's worth of on-site litter. On-site and off-site litter will be characterized and counted by City staff using the Ocean Conservancy's Volunteer Trash Data Form. All three property managers will be interviewed by City staff to help determine residents' attitudes/change in behavior, etc.

- June 1, 2014 – June 30, 2014: Reporting – Final Pilot Report will be presented to ACCWP member agencies.

Depending on the success of the pilot, it may be replicated at other multi-family complexes throughout the County.

The Public Information and Participation Subcommittee of ACCWP also is in the process of identifying other litter-related areas and activities that affect jurisdictions throughout the County, and will implement pilot projects to address the high priority issues over the next several years. One issue being considered is cigarette butt litter.

Community Stewardship Grants
Through its Community Stewardship Grants program ACCWP provides up to $20,000 per year to individuals and community groups to implement stormwater and watershed enhancement and education projects. The grants range from $1,000 to $5,000. Starting in fiscal year 2014/15 ACCWP will specifically encourage and support litter reduction grant applications. The projects of the Fiscal Year 2014/15 grant recipients will be described in the ACCWP Fiscal Year 2013/14 Annual Report.

Anti-Litter Outreach to Residents
Through its Public Information and Participation program ACCWP encourages residents to adopt less polluting behaviors. One targeted behavior is littering, both intentional and unintentional. ACCWP uses a variety of mechanisms to influence residents including public service announcements, online and movie theater advertising, and participating in outreach events. The ACCWP Public Information and Participation Subcommittee is in the process of developing a three-year budget/strategic plan for fiscal years 2014/15 through 2016/17. One of the strategic objectives of the plan will be to reduce litter. This plan will be described in the ACCWP Fiscal Year 2013/14 Annual Report.

3.2.13 Creek and Shoreline Hot Spot Cleanups

Since the MRP adoption, the County has instituted clean-up at four required trash hot spots along creeks pursuant to the MRP provision C.10.b.i. The four hot spots are listed below.

1. ala_san_3, behind Big Lots, 20800 Mission Blvd.
2. ala_cas_1, 3625 Castro Valley Blvd. Castro Valley
3. ala_san _1 Behind 22292 N. 3rd St. Hayward 94546; behind Japanese Gardens
4. ala_est_1 South side of Bay Fair Center 15555 East 14th St., San Leandro

County field crew clean each hot spot at 1-3 times per year.

Table 3-2 Trash Collection Trend at Hot Spot

Trash Hot Spot	FY 2012-13 Volume of Trash Removed (cubic yards)	FY 2011-12 Volume of Trash Removed (cubic yards)	FY 2010-11 Volume of Trash Removed (cubic yards)
ala_san_3 behind Big Lots 20800 Mission Blvd. Hayward 94541.	24cy	60 cy	1 cy
ala_cas_1 3625 Castro Valley Blvd. Castro Valley 94546.	11cy	8 cy	8 cy
ala_san _1 Behind 22292 N. 3rd St. Hayward 94546; behind Japanese Gardens	6 cy	4 cy	3 cy
ala_est_1 South side of Bay Fair Center 15555 East 14th St. #350 San Leandro 94578	34 cy	1 cy	2 cy

3.3 Control Measure Implementation Schedule

The County of Alameda detailed time schedule to implement control measures for trash reduction is in Table 3-3 below.

Table 3-2. County of Alameda completed and planned trash control measure implementation schedule.

Priority and Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014[a]	FY 2014-2015	FY 2015-2016	FY 2016-2017[b]	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022[c]
Priority A1 (TMA #5/7)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping/Enhanced	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Management							x	x	x	x	x	x	x	x
Full Capture Treatment Devise						x	x	x	x	x	x	x	x	x
Priority A2 (TMA #9a)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Management							x	x	x	x	x	x	x	x
Full Capture Treatment Devise						x	x	x	x	x	x	x	x	x
Priority A3 (TMA #6)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping/Enhanced	x	x	x	xx	xx	xx	x	x	x	x	x	x	x	x
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Management							x	x	x	x	x	x	x	x
Full Capture Treatment Devise							x	x	x	x	x	x	x	x

Priority and Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014[a]	FY 2014-2015	FY 2015-2016	FY 2016-2017[b]	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022[c]
Priority A4 (TMA #3)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping/Enhanced	x	x	x	xx	xx	xx	x	x	x	x	x	x	x	x
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Management							x	x	x	x	x	x	x	x
Full Capture Treatment Devise							x	x	x	x	x	x	x	x
Priority B1 (TMA #4)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Management							x	x	x	x	x	x	x	x
Full Capture Treatment Devise								x	x	x	x	x	x	x
Priority B2 (TMA #2)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping/Enhanced	x	x	x	xx	xx	xx	xx	x	x	x	x	x	x	x
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Management							x	x	x	x	x	x	x	x
Full Capture Treatment Devise								x	x	x	x	x	x	x
Priority B3 (TMA #1)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping	x	x	x	xx	xx	xx	xx	x	x	x	x	x	x	x

Priority and Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014[a]	FY 2014-2015	FY 2015-2016	FY 2016-2017[b]	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022[c]
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Management							x	x	x	x	x	x	x	x
Full Capture Treatment Devise								x	x	x	x	x	x	x
Priority B4 (TMA #9b *includes Caltrans High TGA)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
St. Sweep/(Enhancement TBD 6/2016)	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins Mgmt. (TBD 6/2016)														
Full Capture Treatment Devises (TBD)														
Priority C1 (TMA #8 *includes Caltrans High TGA))														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
St. Sweep/(Enhancement TBD 6/2016)	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Priority C2 (TMA #9c)														
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping/Enhanced	x	x	x	x	x	x	xx	xx	xx	xx	xx	xx	xx	xx
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Mgmt. (TBD)														
Full Capture Devises (TBD by 6/2015)														
Priority C3 (TMA #9d)														

Priority and Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014[a]	FY 2014-2015	FY 2015-2016	FY 2016-2017[b]	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022[c]
Enhanced On-land Trash Clean-up		x	x	x	x	x	x	x	x	x	x	x	x	x
Street Sweeping/Enhance	x	x	x	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx	xx
Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Improved Bins/Container Mgmt. (TBD)														
Full Capture Devises (TBD by 6/2015)														
Jurisdiction-wide Control Measures														
Uncovered Load Reduction Activities	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Anti-littering/Dumping Enforcement	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Single-Use Bag Ban					X	X	X	X	X	X	X	X	X	X
K-12 School Outreach						X	X	X	X	Activities to be determined				
Be the Street campaign				X	X	X	Activities to be determined							
Multi-Family Dwelling Outreach						X	Activities to be determined							
Community Stewardship Grants (litter)							X	Activities to be determined						
Litter related outreach to residents	X	X	X	X	X	X	X	X	Activities to be determined					
Creek and Shoreline Hot Spot Cleanups														
Control Measure #1														
Control Measure #2														

[a]July 1, 2014 - 40% trash reduction target
[b]July 1, 2017 - 70% trash reduction target
[c]July 1, 2022 - 100% trash reduction target

4.0 Progress Assessment strategy

Provision C.10.a.ii of the MRP requires Permittees to develop and implement a trash load reduction tracking method that will be used to account for trash load reduction actions and to demonstrate progress and attainment of trash load reduction targets. Early into the MRP, Permittees decided to work collaboratively to develop a trash load reduction tracking method through the Bay Area Stormwater Management Agencies Association (BASMAA). Permittees, Water Board staff and other stakeholders assisted in developing Version 1.0 of the tracking method. On behalf of all MRP Permittees, the Bay Area Stormwater Management Agencies Association (BASMAA) submitted Version 1.0 to the Water Board on February 1, 2012.

The Trash Assessment Strategy (Strategy) described in this section is intended to serve as Version 2.0 of the trash tracking method and replace version 1.0 previously submitted to the Water Board. The Strategy is specific to Permittees participating in the Alameda Countywide Clean Water Program (ACCWP), including the County of Alameda to implement the Strategy in phases and at multiple geographical scales (i.e., jurisdiction-wide and trash management area) in collaboration with ACCWP. Pilot implementation is scheduled for the near-term and as assessment methods are tested and refined, the Strategy will be adapted into a longer-term approach. The Strategy selected by the County is described in the following sections.

4.1 ACCWP Pilot Assessment Strategy

The following ACCWP Pilot Trash Assessment Strategy (ACCWP Pilot Strategy) was developed by ACCWP on behalf of the County and other Permittees in Alameda County. The ACCWP Pilot Strategy will be implemented at a pilot scale on a countywide basis and includes measurements and observations in the County of Alameda.

4.1.1 Management Questions

The ACCWP Pilot Strategy is intended to answer the following management questions over time as trash control measures outlined in section 3.0 are implemented and refined:

- Are specific control measures effective?
- Is the amount of trash in and along local waterways declining?
- Are control measures being implemented appropriately?

The ACCWP Pilot Strategy, including indicators and methods, is summarized in this section. These indicators are intended to detect progress towards trash load reduction targets and solving trash problems.

4.1.2 Indicators of Progress and Success

To track progress, both outcome and output indicators will be assessed. Outcome-based indicators are those that measure the result of litter reduction efforts. This type of indicator could include measurements of litter in and around the storm drain system or local water bodies. Output-based indicators are those that assess the implementation of control measures. This type of indicator could include assessing the maintenance of trash capture devices or compliance with product bans. Indicators that ACCWP Permittees will use to answer the management questions include:

Outcome-Based Indicators:

1-A Amount of single-use plastic bags entering storm drains
1-B Amount of polystyrene food ware entering storm drains
1-C Amount of litter removed from Trash Hot Spots and other creek/shoreline cleanup events
1-D Amount of litter at schools participating in the litter outreach program
1-E Amount of litter at multi-family dwellings participating in the targeted outreach program
1-F Self-reported litter related attitude and behavior of residents

Output-Based Indicators:

2-A Full capture device operation and maintenance
2-B Compliance with the Single-Use Bag Ban
2-C Implementation of an effective street sweeping program
2-D Commercial Trash Container Management
2-E Residential Trash Container Management

In selecting the indicators above, the County of Alameda in collaboration with ACCWP and other ACCWP Permittees recognize that no one environmental indicator will provide the information necessary to effectively determine progress made in reducing trash discharged from MS4s and improvements in the level of trash in receiving waters. Multiple indicators were therefore selected.

As described in Section 2.2, trash is transported to receiving waters from pathways other than MS4s, which may confound our ability to observe MS4-associated reductions in creeks and shorelines. Evaluations of data on the amount of trash in receiving waters that are conducted over time through the Pilot Assessment Strategy will assist the County in further determinations of the important sources and pathways causing problems in local creeks, rivers and shorelines.

4.1.3 Pilot Assessment Methods

This section briefly summarizes the preliminary assessment methods that the County of Alameda will implement through the ACCWP Pilot Strategy to generate indicator information described in the previous section. Additional information on each method can be found in the ACCWP Pilot Trash Assessment Strategy submitted to the Water Board by ACCWP on behalf of the County.

OUTCOME-BASED INDICATORS

1-A Amount of Single-Use Plastic Bags Entering Storm Drains

ACCWP participated in the development of the BASMAA baseline trash generation rate study. A total of 47 drop inlet full trash capture devices located throughout Alameda County were included in the study. The study included an assessment of the volume and number of single-use plastic bags found in these 47 inlets as well as over 100 other inlets from throughout the Bay Area. Since the conclusion of the study, the Alameda County Waste Management Authority has adopted a single-use bag ban. As of January 1, 2013, all grocery stores, supermarkets, mini-marts, convenience stores, liquor stores, pharmacies, drug stores or other entities that sell milk, bread, soda and snack foods (all four items) and/or alcohol (Type 20 or21 license) in Alameda County must comply with the Single-Use Bag Ban Ordinance.

ACCWP will conduct a follow-up study to assess the number and volume of single-use plastic bags in storm drain inlets throughout the County following the implementation of the bag ban. The study will consist of re-sampling most or all devices sampled during the previous study and comparing the number of single-use bags found before versus after the implementation of the bag ban. ACCWP will also sample up to 50 additional full trash capture inlet devices from high and medium trash generating areas throughout the County and compare the number of single-use bags found in all of the sampled inlets in Alameda County after the adoption of the bag ban versus the number of bags found in inlets throughout the Bay Area during the baseline trash generation rate study. ACCWP is planning to assess the level of single-use and other trash in all of the approximately 100 inlets again after several years to assess the overall decline in trash over time. A detailed study design is included in the ACCWP Pilot Assessment Strategy to be submitted separately.

1-B Amount of Polystyrene Food Ware Entering the Storm Drain System

As noted above, ACCWP participated in the development of the BASMAA baseline trash generation rate study. A total of 47 drop inlet full trash capture devices located throughout Alameda County were included in the study. The study included an assessment of the volume and number of expanded polystyrene (EPS) food ware items found in these 47 inlets as well as over 100 other inlets from throughout the Bay Area. A majority of the fourteen cities within Alameda County have adopted expanded polystyrene food ware bans. San Leandro and Pleasanton adopted their expanded polystyrene bans after the completion of the BASMAA baseline trash generation rate study.

ACCWP will conduct a follow-up study to assess the effectiveness of the EPS food ware bans at reducing the amount of EPS entering the storm drain system. As San Leandro and Pleasanton have adopted their ban since the completion of the baseline study, the follow-up study will compare the volume and number of EPS food ware items in the full trash capture devices in those two cities before and after the implementation of the bans. ACCWP will also sample a total of up to 100 full trash capture inlet devices from

throughout the County and compare the number and volume of EPS food ware items in areas with versus without EPS bans. A detailed study design is included in the ACCWP Pilot Assessment Strategy to be submitted separately.

1-C Amount of Litter Removed from Trash Hot Spots and Other Creek/Shoreline Cleanup Events

ACCWP member agencies collect trash annual from a total of 47 Hot Spots as well as numerous additional creek and shoreline cleanup events. Each member agency will gather data from these events that will allow for long term tracking of trends. The data to be collected include the volume and or weight of trash removed, the number of people and or the total number of person hours for each event, the length of creek or shoreline cleaned, and the dominant types of trash at each location. ACCWP will compile the data from these events and track the long term trends in trash along these water bodies throughout the County. Member agencies will also track trends at their specific cleanup locations.

1-D Amount of Litter at Schools Participating in the Litter Outreach Program

ACCWP has developed a request for proposal for a four-year litter reduction education/outreach grant directed at K-12 schools throughout Alameda County. ACCWP intends to award a total of up to $125,000 per year to the successful applicant(s). The goals of the project are to clearly reduce the amount of litter at the participating schools and incorporate institutional changes at the schools so that litter will continue to be reduced in the future. Implementation is scheduled to begin in the 2014/15 school year. The request for proposal will include a requirement to evaluate the level of litter reduction achieved. A copy of the request for proposals is included in the ACCWP Pilot Assessment Strategy. A description of the assessment mechanism(s) of the successful proposal(s) will be included in the ACCWP Fiscal Year 2013/14 Annual Report.

1-E Amount of Litter at Multi-Family Dwellings Participating in the Targeted Outreach Program

Multi-family dwellings (i.e., apartment buildings and condominium complexes) are often areas of high trash generation. ACCWP is working with the City of Livermore to develop a litter reduction pilot targeting multi-family complexes known to be sites with significant litter issues. The pilot includes the following apartment building and condominium complexes: Livermore Garden Apartments (5720 East Avenue), La Castilleja (975 Murrieta Boulevard), and Castilleja Del Arroyo (1001 and 1009 Murrieta Boulevard). The planned assessment mechanisms include:

- December 2013: Pre-campaign Measurement – ACCWP and the City will take baseline measurements of all three sites. Methods of measurement will include taking photos of on-site litter, as well as collecting, characterizing and counting the litter using the Ocean Conservancy's Volunteer Trash Data Form. (Adopt A Creek Spot volunteers use this Data Form to characterize and count the trash collected from the Trash Hot Spot located behind the condominium complexes

on Coastal Clean-up Day.) Areas to be measured include landscaped and other common areas, the sidewalk, gutter and streets located in front of the sites. All three property managers/volunteers will collect one week's worth of on-site litter.

- November – December 2013: Research – All three property managers will be interviewed by City staff using twenty-five questions developed by the ACCWP. The interview results will help define the target audience(s) (i.e., age groups, income level, ethnic groups, etc.) and determine outreach tactics (i.e., face-to-face, signage, printed materials, etc.) This information will also assist the City and ACCWP in developing appropriate messaging.

- November 2013 – January 2014: Plan – One of the three sites will be chosen as the "Control" site. In addition, outreach strategies and tactics will be selected for the "Active" sites.

- May 17, 2014 – May 31, 2014: Post-campaign Measurement — City staff and ACCWP will duplicate the pre-campaign measurement methodologies at all three sites, including the Control. All three property managers/volunteers will collect one week's worth of on-site litter. On-site and off-site litter will be characterized and counted by City staff using the Ocean Conservancy's Volunteer Trash Data Form. All three property managers will be interviewed by City staff to help determine residents' attitudes/change in behavior, etc.

- June 1, 2014 – June 30, 2014: Reporting – Final Pilot Report will be presented to ACCWP member agencies.

1-F Self-Reported Litter Related Attitude and Behavior of Residents

Through its Public Information and Participation program ACCWP encourages residents to adopt less polluting behaviors. One targeted behavior is littering. ACCWP uses a variety of mechanisms to influence residents including public service announcements, online and movie theater advertising, outreach to K-12 schools, and participating in outreach events. ACCWP conducts telephone surveys of residents every several years to gauge Alameda County residents' awareness and attitude regarding stormwater related issues. These surveys include questions regarding respondents' reported behavior and attitudes regarding litter and littering. Future surveys will continue to track the long term trends in residents' awareness and attitudes regarding litter and littering.

OUTPUT-BASED INDICATORS

2-A Full capture device operation and maintenance

Consistent with the MRP, adequate inspection and maintenance of trash full capture devices is required to maintain full capture designation by the Water Board. The County of Alameda is currently developing an operation and maintenance verification

program (Trash O&M Verification Program), via ACCWP, to ensure that devices are inspected and maintained at a level that maintains this designation. The ACCWP Trash O&M Verification Program will be modeled on the current O&M verification program for stormwater treatment controls implemented consistent with the Permit new and redevelopment requirements.

2-B Compliance with the Single-Use Bag Ban

The Alameda County Waste Management Authority is taking the lead on inspection and enforcement of the Single-Use Bag Ban. ACCWP will coordinate with the Waste Management Authority and report on the results of their inspection and enforcement program.

2-C Implementation of an effective street sweeping program

Street sweeping can be very effective in reducing the amount of trash entering the storm drain system. However, its effectiveness is dependent upon the frequency of sweeping and the ability of the sweeper to sweep along the edge of the curb. Parked cars can significantly reduce the effectiveness of a street sweeping program. The County of Alameda *will coordinate with ACCWP to develop and implement an assessment of its street sweeping program.*

2-D Commercial Trash Container Management

Improper trash container management at commercial facilities can be a significant source of trash to the storm drain system. The County of Alameda *will coordinate with ACCWP to develop and implement an assessment of its commercial trash container management program.*

2-E Residential Trash Container Management

Fugitive trash from residential trash collection can be a significant source of trash to the storm drain system. The County of Alameda *will coordinate with ACCWP to develop and implement an assessment of its residential trash collection program.*

4.2 BASMAA "Tracking California's Trash" Project

The ACCWP Pilot Assessment Strategy described in the previous section recognizes that outcome-based trash assessment methods needed to assess progress toward trash reduction targets are not well established. In an effort to address these information gaps associated with trash assessment methods, the Bay Area Stormwater Management Agencies Association (BASMAA), in collaboration with ACCWP, the 5 Gyres Institute, San Francisco Estuary Partnership, the City of Los Angeles, and other stormwater programs in the Bay Area, developed the *Tracking California's Trash* Project. The Project is funded through a Proposition 84 grant awarded to BASMAA by the State

Water Resources Control Board (SWRCB) who recognized the need for standardized trash assessment methods that are robust and cost-effective.

The Project is intended to assist BASMAA member agencies in testing trash assessment and monitoring methods needed to evaluate trash levels in receiving waters, establish control measures that have an equivalent performance to trash full capture devices, and assess progress in trash reduction over time. The following sections provide brief descriptions of tasks that BASMAA will conduct via the three-year Project. Full descriptions of project scopes, deliverables, and outcomes will be developed as part of the task-specific Sampling and Analysis Plans required by the SWRCB during the beginning of the Project. The Project is currently underway and will continue through 2016.

4.2.1 Testing of Trash Monitoring Methods

BASMAA and the 5 Gyres Institute will evaluate the following two types of assessment methods as part of the Project:

- **Trash Flux Monitoring** – Trash flux monitoring is intended quantify the amount of trash flowing in receiving waters under varying hydrological conditions. Flux monitoring will be tested in up to four receiving water bodies in San Francisco Bay and/or the Los Angeles areas. Methods selected for evaluation and monitoring will be based on a literature review conducted during this task and through input from technical advisors and stakeholders. Monitoring is scheduled to begin in 2014 and will be completed in 2016.
- **On-land Visual Assessments** – As part of the Project, BASMAA will also conduct an evaluation of on-land visual assessment methods that are included in the ACCWP Pilot Assessment Strategy. The methods are designed to determine the level of trash on streets and public right-of-ways that may be transported to receiving waters via MS4s. BASMAA plans to conduct field work associated with the evaluation of on-land visual assessment at a number of sites throughout the region. To the extent practical, sites where the on-land methods evaluations take place will be coordinated with trash flux monitoring in receiving waters. On-land assessments will occur in areas that drain to trash full capture devices, and all sites will be assessed during wet and dry weather seasons in order to evaluate on-land methods during varying hydrologic conditions. Monitoring is scheduled to begin in 2014 and will be completed in 2016.

4.2.2 Full Capture Equivalent Studies

Through the implementation of BASMAA's *Tracking California's Trash* grant-funded project, a small set of "Full Capture Equivalent" projects will also be conducted in an attempt to demonstrate that specific combinations of control measures will reduce trash to a level equivalent to full capture devices. Initial BMP combinations include high-frequency street sweeping, and enhanced street sweeping with auto-retractable curb inlet screens. Other combinations will also be considered. Studies are scheduled to begin in 2014 and will be completed in 2016.

4.3 Long-Term Assessment Strategy

The County of Alameda is committed to implementing standardized assessment methods post-FY 2016/17 based on the lessons learned from pilot assessments. Assessment activities described in the previous sections will evaluate the utility of different assessment methods to demonstrate progress towards trash reduction targets and provide recommended approaches for long-term implementation. Lessons learned will be submitted to the Water Board with the FY 2015-2016 Annual Report and a revised Strategy will be developed and submitted, if necessary. The revised Strategy will include assessment methods that will be used to demonstrate progress during the remaining term of trash reduction requirements.

4.4 Implementation Schedule

The implementation schedule for the ACCWP Pilot Implementation Strategy, BASMAA's Tracking California's Trash project, and the Long-Term Assessment Strategy are included in Table 4-1. Load reduction reporting milestones are also denoted in the table. The schedule is consistent with the need for near-term pilot assessment results to demonstrate progress toward short-term targets, while acknowledging the need for testing and evaluation of assessment methods and protocols prior to long-term implementation.

Table 4-1. County of Alameda planned trash progress assessment implementation schedule.

Trash Assessment Programs and Methods	Prior to FY 2013-14	Fiscal Year								
		2013-14[a]	2014-15	2015-16	2016-17[b]	2017-18	2018-19	2019-20	2020-21	2021-22[c]
Pilot Trash Assessment Strategy (ACCWP)										
Single-Use Plastic Bag Assessment	X	X				X				
Expanded Polystyrene Assessment	X	X								
Trash Hot Spot Cleanup Assessment	X	X	X	X	X					
K-12 School Litter Reduction Outreach Program						X				
Multi-Family Dwelling Litter Outreach Program	X									
Residents' Self-Reported Litter-Related Behavior	X					X				
Full Capture Operation and Maintenance Verification			X	X	X					
Single-Use Bag Ban Compliance		X	X	X	X					
Street Sweeping Effectiveness Evaluation			X	X	X					
Commercial Trash Container Management Assessment			X	X	X					
Residential Trash Container Management Assessment			X	X	X					
Tracking California's Trash Project (BASMAA)										
Testing of Trash Monitoring Methods										
Trash Flux Monitoring Protocol Testing			X	X	X					
On-land Visual Assessment Evaluations			X	X	X					
Full Capture Equivalent Studies			X	X	X					
Long-Term Trash Assessment Strategy (ACCWP)						X	X	X	X	X

[a]July 1, 2014 - 40% trash reduction target
[b]July 1, 2017 - 70% trash reduction target
[c]July 1, 2022 - 100% trash reduction target

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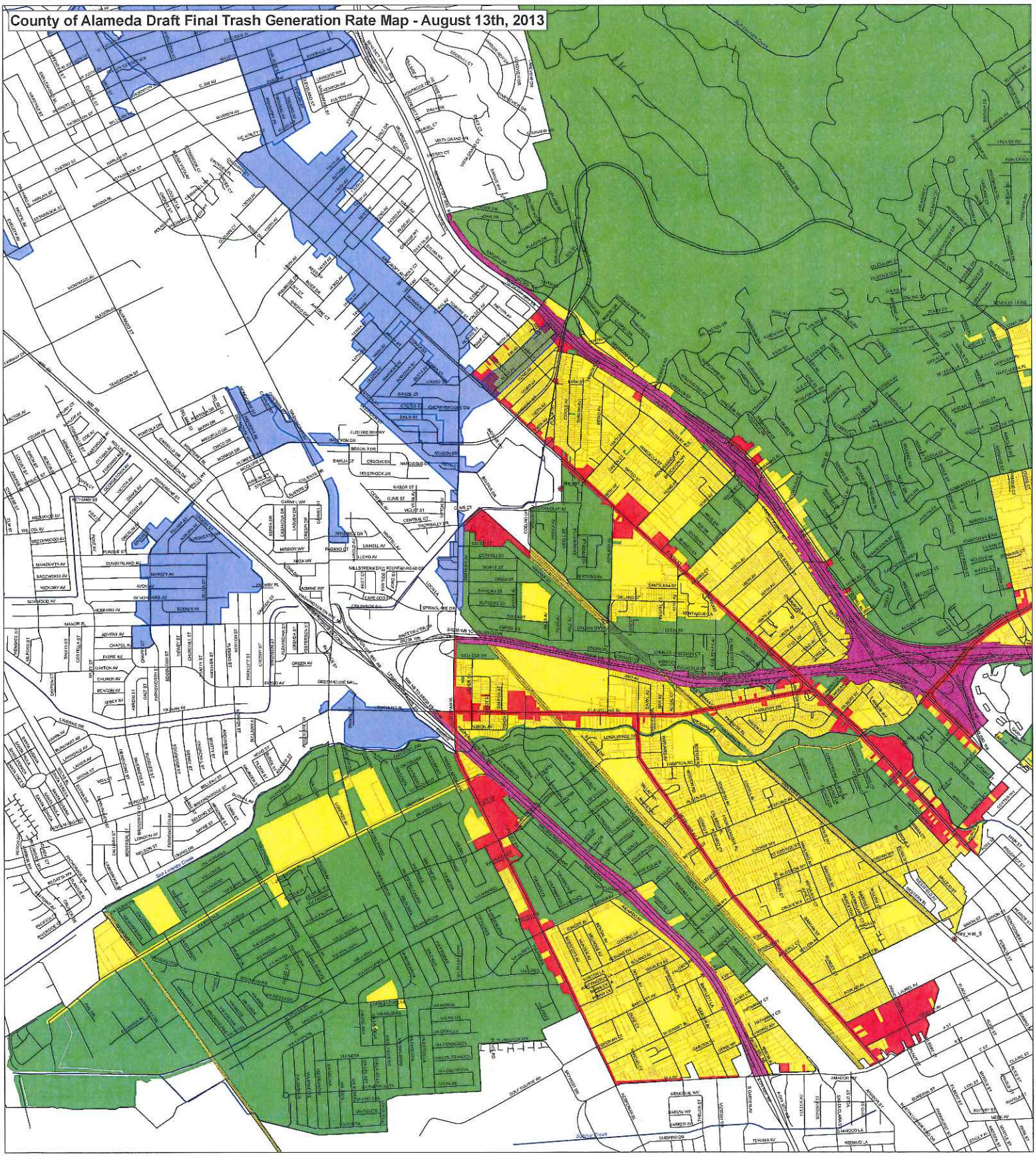
A1

County of Alameda Draft Final Trash Generation Rate Map - August 13th, 2013



Legend

Generation Rate (gal/acre/year)
- Low (< 5)
- Medium (5 - < 10)
- Medium/High
- High (10 - < 50)
- High/Very High
- Very High (> 50)

- Non-Jurisdictional
- Full Trash Capture
- Trash Hot Spot
- Streets
- Agency Boundary
- Creeks

N

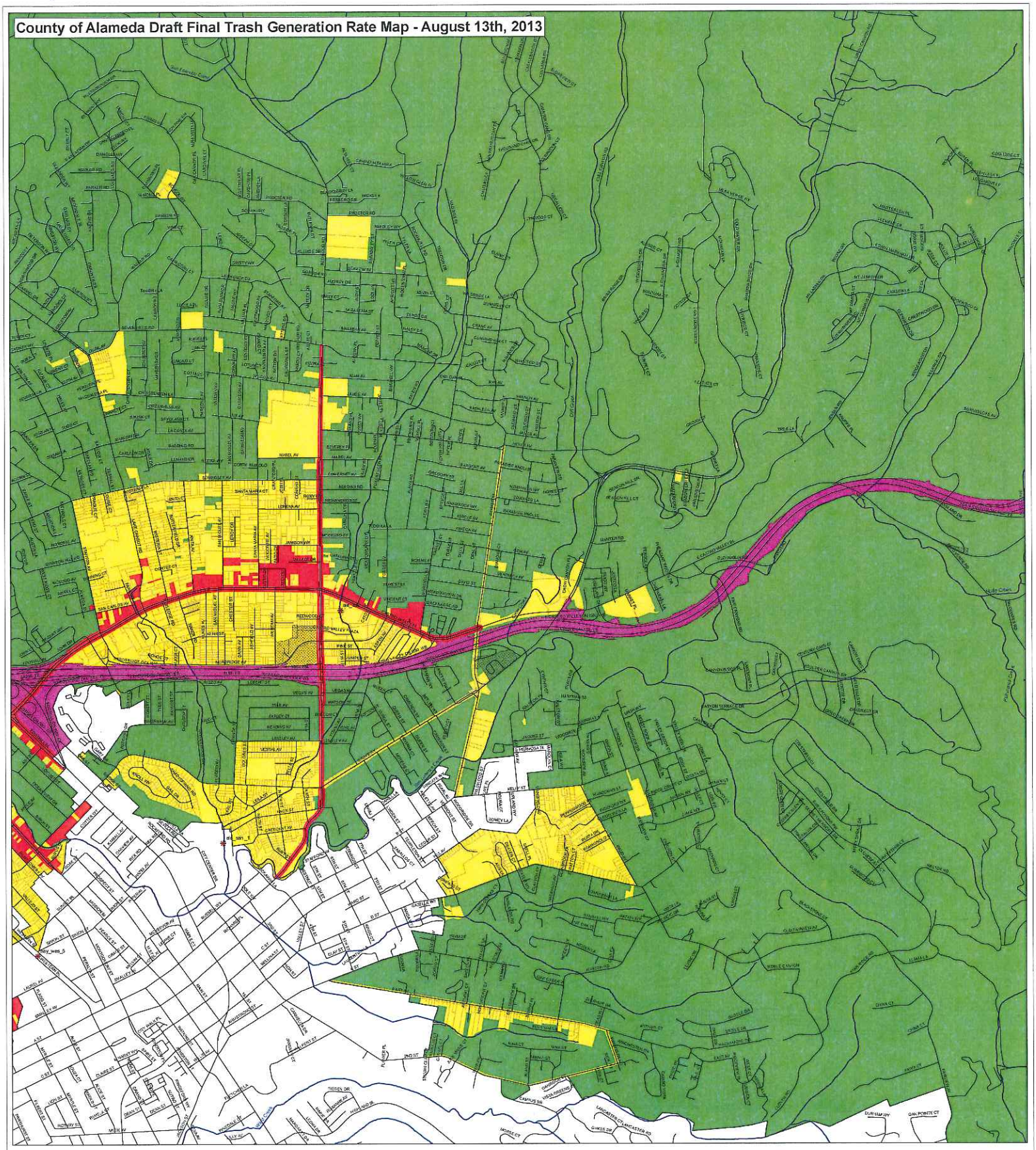
0 0.2 0.4 0.8 Miles

Data Sources:
Roads: Alameda County
City Boundaries: Alameda County
Background: ESRI World Topographic Map

Map Created By:
EOA, Inc.
Date:
August 13th, 2013

A1

County of Alameda Draft Final Trash Generation Rate Map - August 13th, 2013



Legend

Generation Rate (gal/acre/year)
- Low (< 5)
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- High (10 - < 50)
- High/Very High
- Very High (> 50)

- Non-Jurisdictional
- Full Trash Capture
- Trash Hot Spot
- Streets
- Agency Boundary
- Creeks

N

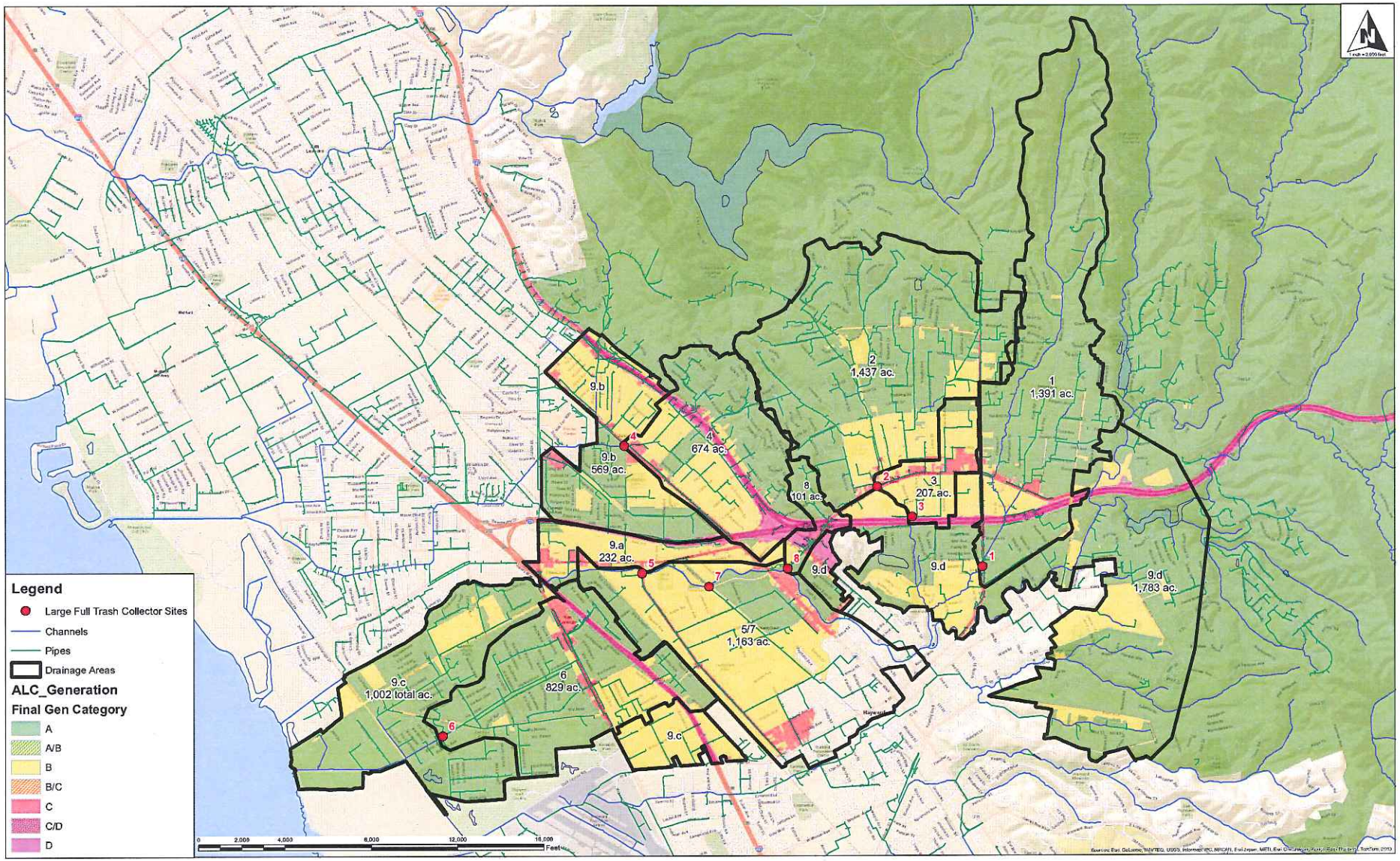
0 0.2 0.4 0.8 Miles

Data Sources:
Roads: Alameda County
City Boundaries: Alameda County
Background: ESRI World Topographic Map

Map Created By:
EOA, Inc.

Date:
August 13th, 2013

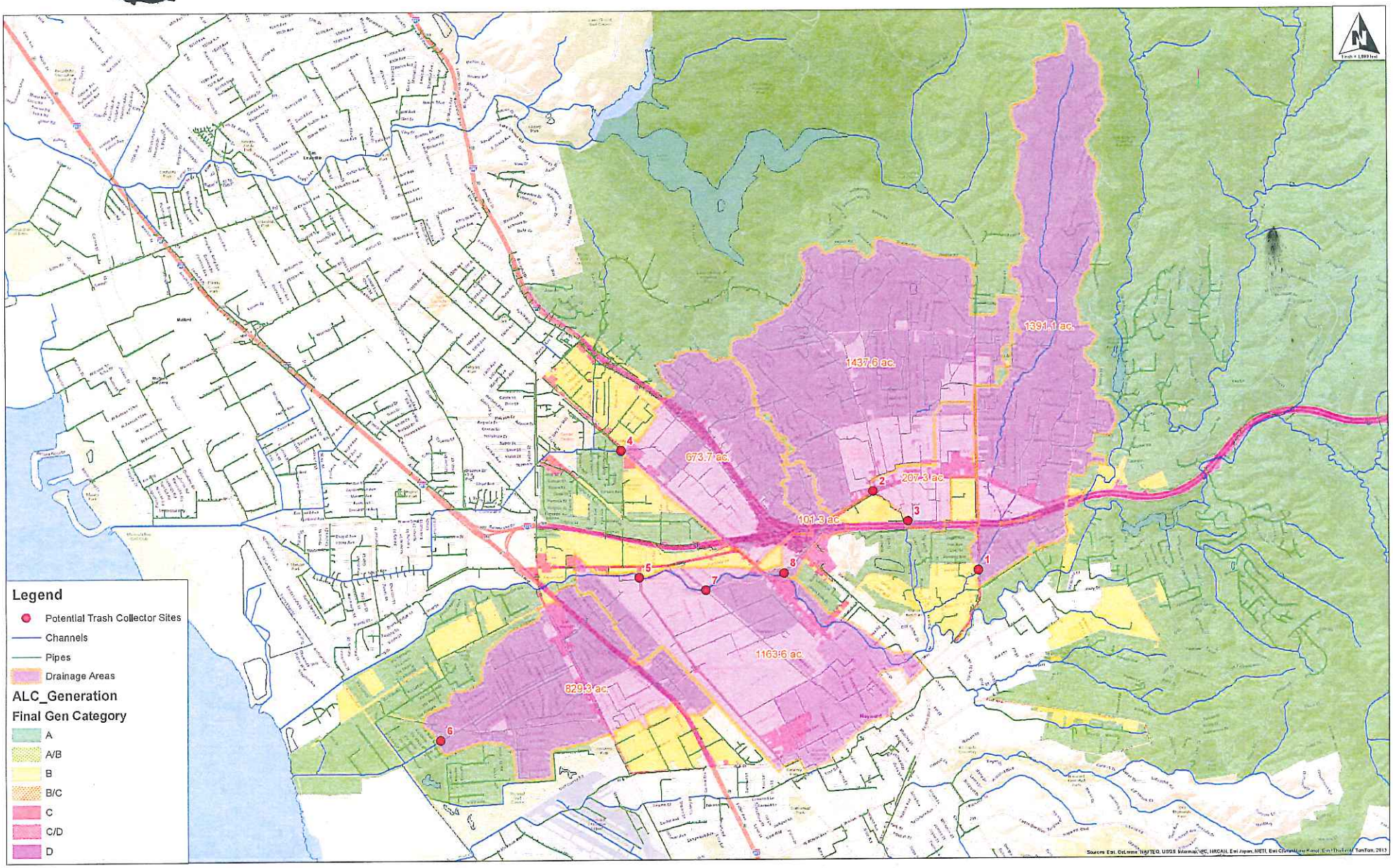
A2: COUNTY OF ALAMEDA TRASH MANAGEMENT AREAS



A3:

[redacted]

COUNTY OF ALAMEDA LARGE FULL TRASH CAPTURE DEVICE SITES WITH DRAINAGE AREAS



Attachment #4: Trash Capture Maintenance Report Form

Trash Capture Device Maintenance Report

Date:_____

Location/Trash Device ID:_____

Time Maintenance Began:_____

Time Maintenance Completed:_____

Reason for inspection/maintenance: (check all that apply)

[ ] Regular scheduled

[ ] Repair (describe):
_____

[ ] Response to complaint
(describe):_____

Is device functioning properly?

[ ] Yes [ ] No (explain):
_____

[ ] Clogged

Condition of device

[ ] Intact, not damaged

[ ] Damaged or broken part
(describe):_____

[ ] Needs repair/adjustment (explain):
_____

Estimate the volume of trash recovered at maintenance event. Use a tape measure or graduated probe to measure trash above the screen and in the sump basin. Volume will be calculated based on the dimensions of the device.

Volume of trash estimate: _____ cubic yards or _____ gallons

Volume of leaves/vegetation estimate: _____ cubic yards or _____ gallons

Maintenance effort:

How many staff participated in this maintenance event?_____

Equipment used for trash removal:

[ ] Manual/shovels/clamshell [ ] Vactor truck [ ] Other (describe):_____

Maintenance time spent at site (excluding travel and disposal of trash):_____hrs. / _____mins.

Photos taken from this maintenance event: [ ] Yes [ ] No

Dominant types of trash found (check applicable items below):

[ ] beverage cans [ ] biodegradable/paper items [ ] bottle caps/lids [ ] Cigarette butts
[ ] floatable foam [ ] glass bottles [ ] hard plastic [ ] plastic bags
[ ] plastic bottles [ ] plastic wrappers [ ] straws/stirrers [ ] Styrofoam
[ ] other:

Identifiable items of trash found:

_____

_____

_____

Comments:

_____

_____

_____

Date Submitted:_____ Report Completed By:_____
(Print Name)

Signature: _____